

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 5 JUL 2004
WIPO PCT

Applicant's or agent's file reference R-3	<div style="display: flex; justify-content: space-between;"> FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) </div>	
International application No. PCT/JP 03/07638	International filing date (day/month/year) 17.06.2003	Priority date (day/month/year) 18.06.2002
International Patent Classification (IPC) or national classification and IPC Int.Cl. ⁷ F28F9/26		
Applicant SHOWA DENKO K.K.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:
 - I ☒ Basis of the report
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 20.11.2003	Date of completion of this report 22.06.2004	
Name and mailing address of the IPEA/JP Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer YOICHI NAGASAKI	<div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">3M 8610</div>
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP 03/07638

I. Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
Nos. _____, as originally filed
Nos. _____, as amended (together with any statement) under Article 19
Nos. _____, filed with the demand
Nos. _____, filed with the letter of _____
- ☐ the drawings:
sheets/figs _____, as originally filed
sheets/figs _____, filed with the demand
sheets/figs _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP 03 / 07638

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1 - 17	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1 - 17	NO
Industrial applicability (IA)	Claims	1 - 17	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

1) The following documents have been considered for the purpose of this report:

D1=Microfilm of the specification and drawings annexed to the written application of Japanese Utility Model Application No.167202/1986(Laid-open No.74970/1988)(SHOWA ALUMINUM CORPORATION)1988.05.18

D2=Microfilm of the specification and drawing annexed to the written application of Japanese Utility Model Application No.92407/1989(Laid-open No.38565/1991)(SHOWA ALUMINUM CORPORATION)1991.04.15

D3=Microfilm of the specification and drawing annexed to the written application of Japanese Utility Mode Application No.32661/1989(Laid-open No.127957/1990)(DIESEL KIKI K.K.)1990.10.22

D4=JP 10-2693 A(ZEXEL VALEO CLIMATE CONTROL CORPORATION)1998.01.06

D5=EP 0789213 A(BEHR GMBH & CO.)1997.08.13 & JP 9-152296 A

2) The subject matter of claim 1 does not appear to involve an inventive step in view of the documents D1,D2.

D1 discloses a heat exchanger, comprising a plurality of heat exchange portions, which have two pipeline headers 3,4, and being assembled into a unit.

D2 discloses a heat exchanger comprising headers 31, which is connected by a connector 10, which also being provided at opposite sides thereof with respective recessed portions.

The skilled person in the art would easily conceive the idea of applying the above facts in D2 to the invention disclosed in D1.

3) The subject matter of claim 2-6 does not appear to involve an inventive step in view of the documents D1-D3.

D3 discloses a cap 7 of header which has recessed portions, and the recessed portions of the cap has a peripheral wall provided, at a location not interfering with the heat exchange tube, with a high portion greater than other portion thereof in height.

4) The subject matter of claim 7 does not appear to involve an inventive step in view of the documents D1-D3.

For the person skilled in the art, it is a matter of modification to make the adjacent heat exchange portions being different in cross sectional size.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V.

5) The subject matter of claim 8 does not appear to involve an inventive step in view of the documents D1-D4.

D4 discloses that the center lines of the headers 4,6 are out of alignment with each other.

6) The subject matter of claim 9 does not appear to involve an inventive step in view of the documents D1-D4.

For the person skilled in the art, it is a matter of modification to adapt the constitution written in claim 9.

7) The subject matter of claim 10 does not appear to involve an inventive step in view of the documents D1-D5.

D5 discloses a separating plate, which is disposed between the two heat exchange tubes.

8) The subject matter of claim 11-14 does not appear to involve an inventive step in view of the documents D1-D5.

For the person skilled in the art, it is a matter of modification to adapt the constitution written in claim 11-14.

9) The subject matter of claim 15-17 does not appear to involve an inventive step in view of the documents D1-D5.

D1 discloses a unit-type heat exchanger comprising two heat exchange portions, one of the heat exchanger portions being a condenser, the other heat exchange portion being an oil cooler.